Use Foaming Agents

NaturalGas EPA POLLUTION PREVENTER

Partner Reported Opportunities (PROs) for Reducing Methane Emissions

PRO Fact Sheet No. 706

Applicable sector(s):

■ Production ☐ Processing ☐ Transmission and Distribution

Compressors/Engines	☐
Dehydrators	☐
Pipelines	☐
Pneumatics/Controls	☐
Tanks	☐
Valves	☐
Wells	■
Other	☐

Partners reporting this PRO: Texaco (now ChevronTexaco Corporation)

Other related PROs: Install Plunger Lift Systems in Gas Wells, Install Velocity Tubing Strings, Install Pumpjacks on Low Water Production Wells

Technology/Practice Overview

Description

When the gas flow velocity is not sufficient to lift reservoir liquids, the liquids will choke gas flow, requiring a well blowdown to the atmosphere to expel liquids and restore gas production. One partner reported reducing the methane emissions associated with frequent well blowdowns through the use of foaming agents in their gas production wells with low bottom-hole pressure.

Typically, a foaming agent (soap) is injected in the casing/tubing annulus by a chemical pump on a timer basis. The gas bubbling through the soap-water solution creates gas-water foam which is more easily lifted to the surface for water removal.

Methane Savings: 2,520 Mcf per year

Costs

Capital Costs (including installation)

☐ <$1,000 ☐ $1,000 – $10,000 ■ >$10,000

Operating and Maintenance Costs (annual)

☐ <$100 ■ $100-$1,000 ☐ >$1,000

Payback (Years)

☐ 0–1 ☐ 1–3 ■ 3–10 ☐ >10

Benefits

Reducing methane emissions was an associated benefit of the project.

Operating Requirements

A means of power will be required to run the surface injection pump. The soap supply will also need to be monitored. If the well is still unable to unload fluid, additional, smaller tubing may be needed to help lift the fluids.

Applicability

Gas production wells without the existing reservoir pressure necessary to lift wellbore liquids are excellent candidates. The use of foaming agents is not recommended for condensate production wells.

Methane Emissions Reductions

Methane emissions occur during blowdown to unload gas production wells. Reported methane emissions reductions are based on reducing the frequency of well unloading.

Economic Analysis

Basis for Costs and Savings

Methane emissions reductions of 2,520 Mcf per year are based on 1 well, reducing the frequency of blowdown on 1 well from biweekly to monthly with 180 Mcf methane emissions per blowdown.

Discussion

The installation of a foaming agent system will require surface facilities including a soap reservoir, injector pump, and a motor valve with a timer. If capillary tubing is required, the use of a work-over rig and crew for one day will be necessary. The primary benefit to the use of soaping systems is the extension of the well's productive life.